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Patterns of Force: System Strength, Terrorism and Civil War

Preliminary draft

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Abstract

We jointly analyze the genesis of terrorism and civil war, providing a simple conceptual framework to explain why violent opposition groups choose distinct forms of violence (i.e., terrorism and open rebellion). We argue that the distinct modes of violent opposition are chosen by violent opposition groups in response to the strengths and weaknesses of the system they challenge. An empirical test of this hypothesis for 103 countries for the period of 1992 to 2004 indeed shows that the socio-economic strength and stability of a system is positively related to the likelihood of terrorism but negatively to incidences of more violent forms of violent opposition. We also show that poor conflict management (as a system weakness) positively impacts the likelihood incidences of more violent modes of violent opposition more likely. Furthermore, we find that system size is positively associated with all analyzed modes of violent opposition.

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1 Introduction

Many empirical studies have analyzed the causes (determinants) of terrorism and civil war, given the enormous direct costs (e.g., lost lives) of these forms of violence but also given their broader implications for economic and political development, even on an international scale.[1] Considering the determinants of terrorism, studies have linked its genesis to, e.g., poor socio-economic conditions (e.g., Burgoon 2006), economic integration (e.g., Kurrild-Klitgaard et al. 2006), political participation and repression (e.g., Li 2005; Abadie 2006; Krueger and Laitin 2008), ethnic conflict (Basuchoudhary and Shughart 2010) and political instability (e.g., by Piazza 2008a; Sanchez-Cuenca 2009b).[2] Similarly, empirical studies have suggested that the origins of civil war are connected to, e.g., natural resources and the uneven distribution of wealth (e.g., Fearon and Laitin 2003; Lujala et al. 2005; Basedau and Lay 2009), unfavorable features of political regimes and political instability (e.g., Hegre et al. 2002; Collier and Hoeffler 2004; Reynal-Querol 2005; Carey 2007; Bates 2008), ethnic tensions and demographic pressures (e.g., Ellingsen 2000; Sambanis 2001; Urdal 2006) and the dynamics of the international political system (e.g., Balch-Lindsay and Enterline 2000; Regan and Aydin 2006).[3]

In order to better understand the genesis of terrorism and civil war, we believe that a *joint analysis* of their roots may be helpful. In this contribution we build on recent works and ideas by, e.g., Sambanis (2008), Besley and Persson (2009) and Sanchez-Cuenca (2009a). We argue that terrorism and civil war are distinct *modes of violent opposition*, chosen by violent opposition groups *in response to the strengths and weaknesses of the system* they challenge. We provide a simple analytical framework which models the mode of violent opposition as a

[1] A number of empirical studies assess the economic and political consequences of civil war and terrorism. For instance, Murdoch and Sandler (2002) document the negative growth effects of civil war, while Crain and Crain (2006) find similar effects for the case of terrorism. As another example, further studies find a negative effect of civil war (Bayer and Rupert 2004; Martin et al. 2008) and terrorism (e.g., Nitsch and Schumacher 2004) on international trade. Some empirical studies also stress consequences of negative spill-over effects from violent civil conflicts for neighbouring countries, e.g., in the form of reduced economic growth (Murdoch and Sandler 2002) or increased political instability (Iqbal and Starr 2008).

[2] A comprehensive survey of the empirical literature on the determinants of terrorism is provided by Krieger and Meierrieks (2010).

[3] A review of the related literature is provided, e.g., by Sambanis (2002).

function of the distinct features of the opposed system. When challenged systems are 'weak', open rebellion is an opportune form of violent opposition. By contrast, when challenged systems are 'strong', open violence becomes less likely but terrorism becomes more probable. We believe that this approach offers an intuitive explanation as to why, e.g., the *Liberation Tigers of Tamil Eelam* (*LTTE*) were able to fight an open civil war from 1983 to 2009 in Sri Lanka (causing the death of over 90,000 individuals), whereas the group *Euskadi Ta Askatasuna* (*ETA*) has merely run a terrorist campaign in Spain (claiming approximately 820 lives), even as both groups share a similar ideology of ethnic-nationalist liberation and violently challenge the existing status quo (which does not provide their peoples independence). In short, the *LTTE* could resort to open rebellion because the Sri Lankan system has been 'weak'. By contrast, because the Spanish system has been 'strong', the *ETA* has been forced to resort to a terrorist campaign.

In this contribution we also empirically test the reasoning that the mode of violent opposition is a function of the distinct features of the system the violent opposition challenges. Using cross-sectional time-series data for 103 countries for the period of 1992 to 2004, we first identify certain dimensions of system strengths/weaknesses through principal component analysis. Then, we run a number of multinomial logistic regressions for 103 countries during 1992-2004, finding that some support for our main hypothesis. In particular, we find that a latent variable indicating socio-economic strength and stability is positively related to the likelihood of terrorism but negatively to incidences of more violent forms of violent opposition. We also show that poor conflict management makes incidences of more violent modes of violent opposition more likely. Further, our results indicate that system size is positively associated with incidences of all modes of violent opposition. Thus, our results imply that civil war can be prevented through more sound conflict management and an improvement of socio-economic conditions, even as such improvements may mean that terrorism becomes more likely.

The remainder of this contribution is structured as follows. In Section 2 we provide a conceptual framework for the relationship between violent opposition and the system it challenges, arguing that the patterns of violent opposition are a function of the strengths and weaknesses of the system this opposition challenges. In Section 3 we describe the data used to test this hypothesis empirically. The empirical methodology and results are discussed in Section 4. In Section 5 we conclude.

2 A Conceptual Framework for the Relationship Between System Strength and Violent Opposition

2.1 Violent Opposition

In this study we want to theoretically and empirically assess the factors contributing to the existence (incidences) of violent opposition within a country. That is, we consider only this kind of opposition by non-state actors that opposes the existing system or status quo (i.e., the distribution of power and resources) and seeks to eliminate and replace the existing system.[4] Evidently, this form of opposition also has to involve a certain degree of violence.[5]

We believe that there a distinct modes of violent opposition (i.e., terrorism and civil war) which differ in many respects (as we shall discuss below). However, there are also some characteristics common to all forms of violent opposition. First, these groups have similar *intermediate goals*. That is, they attack in order to create economic and political destabilization and to gain public attention. Violent opposition groups (terrorist groups and rebel/insurgent groups) try to weaken their enemy through destabilization (so that it is more likely that their enemy accommodates) and gain popular support. Second, violent opposition often have similar *ultimate goals*. For instance, as argued before both the *LTTE* and *ETA* have fought for national independence. In the past violent opposition against the status quo has been fueled by the ideas of national liberation, leftist world revolution or religious fundamentalism (Shughart 2006). No ideology seems to be particularly linked only to a certain mode of violent opposition. Third, all kinds of violent opposition groups tend to attack *similar targets*. As stressed by Sanchez-Cuenca (2009a), even as terrorism is often associated with attacks against unarmed (civilian) targets, terrorist groups (similar to rebel groups) rather attack the armed forces of the opposing system (i.e., the police or military).[6] This fits the logic of thinking of terrorist activity as the use of force to overthrow an existing system by weakening it.

[4] That is, we exclude any form of opposition that seeks changes *within* a system. We exclude any violent action that does not aim at changing an existing system. This may e.g. apply to military coups.

[5] Thus, we exclude any form of non-violent opposition (e.g., general strikes), even if such opposition openly opposes the existing system or status quo (e.g., peaceful separatist political parties).

[6] Sanchez-Cuenca (2009a) argues that international and right-wing terrorist activity is more strongly directed against civilians and thus the often made connection between terrorism and attacks against civilians stems, inter alia, from the over-representation of these forms of terrorism in the media.

We build on some related ideas in Sambanis (2008) and Sanchez-Cuenca (2009a) and argue that any kind of opposition directed against the existing status quo should be considered as violent opposition when violence is used. It is our understanding that terrorist groups and rebel groups (i.e., all kinds of violent opposition groups) generally have similar tactical and strategic goals and usually direct their violent activity against the opposing system and their representatives (and not civilians). As we shall discuss in the next subsection, it is the strength (weakness) of the very system protecting this status quo which determines the mode of violent opposition.

2.2 The Modes of Violent Opposition

Even as terrorism and open rebellion may be motivated by similar goals and may use violence against similar targets, they clearly differ in many respects. For our analysis we distinguish between tow modes of violent opposition and an intermediate type. In detail, we argue that violent opposition may be characterized as (i) terrorism, (ii) a major civil war or (iii) a minor civil war or major terrorist activity, respectively.[7] Table 1 gives on overview of the differences between the different modes of violent opposition. Here, we again build on some ideas of Sambanis (2008), Sanchez-Cuenca (2009a) and Sanchez-Cuenca and Calle (2009).

In detail, we argue that the modes of violence differ with respect to their visibility, their ability to gain control over a territory, the level of violence, their degree of organization, the degree of public support and participation and the power differential between the violent opposition group and the system it challenges. For our empirical analysis we in particular use the different lethality per year thresholds to distinguish between the different modes of opposition.

[7] Note that we create an intermediate category of violent opposition to clearly differentiate between 'pure' terrorism and 'pure' and open civil war. This intermediate category may include incidences of a waning civil war below the 1000 battlefield deaths/year threshold (e.g., Guatemala in the early 1990s) or an episode of major terrorist activity (e.g., activity by the *al-Gama'a al-Islamiyya* in Egypt in the 1990s). Future research may be necessary to further break down this intermediate category.

Type/Level of Violent Opposition	Terrorism	Minor Civil War/Major Terrorist Campaign	Major Civil War
Visibility	Low (Clandestine)	Rather Low	Rather High (Open Rebellion)
Territorial Control	No	Potentially Yes	Mostly Yes
Lethality/Year	<25	25-1000	>1000
Organizational Structure	Decentralized Cells	More Strongly Organized	Centralized (Military and Political) Hierarchy
Public Participation	Low Support	Potentially stronger	Strong (Mass) Support
Power Balance	High Degree of Asymmetry	Rather High Degree of Asymmetry	Rather Low Degree of Asymmetry

Table 1: Categorization of Violent Opposition

2.3 System Strength and Violent Opposition

Considering the different modes of violence, open rebellion is obviously the most promising one, i.e., the default option of any violent opposition group. Economically speaking, an open rebellion is the mode with the highest pay-off, given that rebellion success allows the violent opposition group to replace the opposed status quo and to gain control over the political and economic agenda setting (i.e., the distribution of power and wealth). By contrast, terrorist groups are highly unlikely to exert ultimate control over the distribution of power and resources. Terrorist success means to force the enemy (i.e., the system) to accommodate to some of the terrorists' demands.

While the benefits of open rebellion should always be higher than the ones of terrorism, we believe that the strength and weaknesses of an opposed system influence the costs (opportunity costs) of violent opposition and thus, ultimately, the distinct mode of resistance.[8]

On the one hand, the strength and weaknesses of an opposed system may influence the direct costs of violent opposition (cf., e.g., Abbink and Pezzini 2005). The default option of open rebellion against a system should be less attractive when an opposed system is, e.g., able to exercise control over its territory and population and to manage conflict efficiently. For

[8] Basically, an open rebellion is the most costly form of violent opposition, e.g., requiring the funding of large military and political organizations. Terrorism is comparatively cost-efficient.

instance, the direct costs of rebellion (e.g., establishing a liberated territory) should be high when an opposed system has tight control over its territory and is able to retaliate quickly (e.g., because it is not involved in other conflicts).

On the other hand, the strength and weaknesses of an opposed system may impact the opportunity costs of violence (cf., e.g., Frey and Luechinger 2003). In particular high-scale civil conflict should become is less likely when a system offers efficient means of inclusive and non-violent socio-economic participation (i.e., alternatives to violence). For instance, it should be more difficult (more costly) for underground groups to find popular support when they system they oppose offers means of profiting from economic success (e.g., as youth burdens are low and property rights are protected). By conflict, poor conflict management (besides decreasing the direct costs of violent opposition) may make violent opposition activity more attractive, e.g., as poor conflict management means that political participation is constrained (meaning that the opportunity costs of violence are rather low).

Generally, a 'strong' system makes a high-scale rebellion less probable, given that system strength makes such an effort comparatively more costly from the perspective of potential perpetrators and supporters. Intuitively, we assume that a 'strong' system generally deters violence (due to its effect on the cost-benefit considerations of violent groups). However, it is our understanding that violent opposition groups resort to terrorism for exactly this reason. That is, we argue that the decision of a violent opposition group to choose a certain mode of violence depends upon the strengths and weaknesses of the opposed system. Civil war is not the most efficient mode of opposition when the challenged system is 'strong' enough, e.g., as it may be too costly to find enough support (cf. Abbink and Pezzini 2005) and terrorism becomes are more likely mode of attack. This choice is then clearly related to the differences between the distinct modes highlighted in Table 1. For instance, violent opposition group facing a 'strong' system are faced to operate from the underground (cf. Sanchez-Cuenca 2009a), so they are not able to control territory, inflict high damages and need to resort to a rather decentralized form of organization. This underground activity is then usually referred to as 'terrorism'. From this above discussion, our main hypothesis is thus:

> *The mode of violent opposition activity depends upon the strength and weaknesses of the system it challenges. While system strength makes large-scale rebellions less likely, it makes terrorist activity more likely.*

In the next sections, we want to empirically test whether this hypothesis holds. In particular, we are interested in seeing which aspects of system strength (and weaknesses) matter to the choice of distinct modes of violent opposition.[9]

3 Data

In order to empirically test our hypothesis that the mode of violent opposition depends upon certain characteristics of the system it challenges, we compile panel data on the incidences of violent opposition (dependent variables), system strength (independent variables) and some further control variables for 103 countries for the period of 1992-2004.[10] Table 2 gives on overview of the descriptive statistics of the dataset.

Variable	Observations	Mean	Std. Dev.	Min	Max
Terror	1337	0.263276	0.4405757	0	1
Minor Conflict	1337	0.1166791	0.3211577	0	1
Major Conflict	1337	0.0560957	0.2301926	0	1
GDP	1330	7.665502	1.667789	4.034598	10.57144
Bureaucracy	1337	5.646737	2.864066	0	10
Youth Burden	1336	32.81649	10.85534	14.06489	51.10476
Rule of Law	1337	6.602572	2.34912	0	10
Stability	1336	25.79865	33.33706	0	195
Urbanization	1339	56.03001	22.69043	11.35	97.23
Corruption	1337	4.701965	2.147569	0	10
Population Size	1336	16.52308	1.417557	13.17792	20.98267
Trade Openness	1310	71.03314	35.19531	12.79667	228.8752
Military Expenditures	1258	2.90214	2.920974	0.3632136	31.78581
External Conflict	1337	1.38811	1.381499	0	8.333333
Democracy	1323	70.37793	31.92407	0	100
Religious Influence	1339	2.318065	2.291383	0	10
Economic Rights	1337	6.052964	1.947649	0	10
Mountains	1339	15.57684	17.95577	0	71.3
Latitude	1339	26.7651	16.37428	0.228	60.212
Neighborhood	1339	0.1411501	0.3483064	0	1

Table 2: Summary Statistics

3.1.1 Dependent Variables

For our empirical analysis we use three indicators for violent opposition violence. The first one measures *incidences of homeland terrorism* and is constructed from the *Global Terrorism*

[9] Note that in the empirical analysis we also assess whether non-monotonic links exist between system strength and the modes of violent opposition.

[10] A country list is given in the appendix.

Database (*GTD*) of LaFree and Dugan (2007). This measure is defined as any terrorist action by a known group or an individual in their home country (homeland), regardless of the nationality of the victims of the attack.[11] We therefore do not differentiate between domestic and transnational terrorism as most previous studies have done.[12] As argued by Sanchez-Cuenca and Calle (2009), the 'classic' differentiation between domestic and transnational terrorism certainly leads to a truncation of datasets used in the analysis of terrorism, so that empirical analyses may potentially yield biased results. In any event, the differentiation appears to be artificial. By using the *GTD*, we avoid the need to differentiate between domestic and transnational terrorism.[13]

The second variable measures *incidences low level civil war or major terrorist activity*. As argued above, we consider this measure as an intermediate variable, either indicating a civil war that is below the 1000 battle death/year threshold or a major terrorist campaign exceeding the 25 battle death/year threshold. Our second variable is thus defined by the lethality of violent opposition in a given year and country, where this lethality ranges between 25 and 1000 battle death/year. Data for this variable is from the *PRIO database* (Gleditsch et al. 2002).

Our third indicator captures high level civil conflict, i.e., an open civil war with more than 1000 battle death in a given year. This variable also comes from the *PRIO database*.

3.1.2 Independent Variables

As already noted above, the empirical literature has discussed a number of potential variables explaining the causes of terrorism and civil war.

[11] As media attention is one goal of terrorist groups, we do not consider unclaimed terrorist actions as they may have very well only criminal backgrounds. As we measure terrorism dichotomously, the possibility of underreporting terrorism due to this constraint is small.

[12] Domestic terrorism refers to terrorism only involving one country. Transnational terrorism refers to terrorism that involves more than one country. While domestic terrorism is more common than transnational terrorism, it is not accounted for in 'traditional' terrorism datasets which focus on international terrorism instead.

[13] With respect to the 'classic' differentiation between domestic and transnational terrorism this means we consider all domestic terrorist activity and all transnational terrorist activity originating from a certain country (i.e., the homeland) and carried out in this very country. Thus, we avoid a truncation of the data and consider all activity conducted by terrorists in their 'natural' territory. We expect this kind of terrorism to interact the strongest with the challenged homeland system.

For this study we consider a variety of variables indicating various aspects of the strengths and weaknesses of a system challenged by violent opposition. Considering socio-economic (i.e., economic and demographic) factors, we employ data on *per capita income*, *trade openness*, *population size*, *urbanization* and the existence of a *youth burden*. We also use a number of political and institutional variables, namely on political participation (*democracy*), *regime stability*, the *rule of law*, the quality of the national *bureaucracy*, the degree of *corruption* and the extent of *military expenditures* and of *external conflict*.

In contrast to previous studies on the causes of violent opposition, we do not use the aforementioned indicators on their own in our analysis. As we shall discuss later, we instead use these variables to construct several encompassing measures of system strength and weakness through the use of principal component analysis. Thus, we do not discuss our independent variables in detail. Further information on these variables (e.g., with respect to data sources) is given in the appendix.

3.1.3 Further Control Variables

In order to validate the robustness of our empirical findings, we consider some further factors which may also influence the decision to choose a certain mode of violent opposition. Information on these variables can be found in the appendix.[14]

First, we include *lagged dependent variable* and *lagged violent opposition variables* to account for the autocorrelation of the depending variable and the reinforcing nature of violent opposition. Evidently, a prolonged campaign of violent opposition is associated with, e.g., increased pay-offs (media attention) and certain economies of scale of violence (e.g., decreasing costs of violence due to learning-by-doing). The self-energizing effects of violent opposition are widely recognized in the empirical literature, e.g., by Enders and Sandler (2005) for the case of terrorism.

Second, we control for certain geographical features. Here, *mountainous terrain* is may impact violent activity as this terrain may be used as hiding or training place for opposition groups as it may be hard to access (making violence less costly). Similar arguments are used

[14] Note that we also include time dummies and regional dummies to control for effects that are specific to certain parts of the world in some extensions of our empirical model.

for a country's *climate* (measured by the absolute latitude).[15] For instance, Abadie (2006) and Kurrild-Klitgaard et al. (2006) show that a climate which favors a certain type of vegetation (e.g., jungle) is positively related to terrorist activity. At the same time, terrain which is inaccessible due to a certain climate makes it more difficult for a system to use its military capacity to oppress any violent opposition.

Third, we also control for the possibility of *spatial contagion* by including a neighborhood variable in some specifications. Following, e.g., Burhaug and Gleditsch (2008), with this variable we want to model the potential spill-over of civil war (e.g., through migration and ethnic ties) to other countries. A similar concept has also been introduced into the study of the determinants of terrorism (cf. Krieger and Meierrieks 2010).

4 Methodology and Empirical Results

In this section, we describe our empirical methodology to assess the links between system strength and violent opposition and present our empirical results. Here, our basic idea is that the probability that a country experiences certain forms of violent opposition (VIOLENCE) is dependent upon aspects of system strength (SYSTEM STRENGTH), potentially net of the impact of a set if controls (X'):

$$P(VIOLENCE_{ij,t}) = f(SYSTEM\ STRENGTH_{ik,t}\ X'_t) \quad (1)$$

Let $SYSTEM\ STRENGTH_{ik,t}\ X'_t$ be denoted further on as w_{it}. As it follows from equation (1), the probability that country *i* experiences the *j*-th form of political violence (i.e., terrorism, minor civil conflict or civil war) in year *t* generally depends upon the strength of the system (measured in the *k*-th form) and the set of controls.

4.1 Principal Component Analysis

In order to identify the strengths and weakness of a system, a *principal component analysis* (PCA) is employed. With this analysis, we are able to reduce the variables and thus the dimensions to be considered in the analysis, e.g., reducing problems associated with

[15] However, as this variable may also capture economic development and thus cause problems linked to multicollinearity.

multicollinearity and ambiguous interpretability. We assume that several indicators (as described before as independent variables) together linearly describe 'strong' and 'weak' facets of system characteristics. The latent variables identified through the PCA consist of the correlation coefficients between the observed variables and the latent variable from the following equation: $Z = PA'$, where Z indicates the standardized coefficient matrix of the latent variable, P the linear relationship between latent and observed variable and A the data matrix of the observed variables. The results of the PCA (i.e., the constructed variables and their factor weights) are reported in Table 3.

	Component		
	Socio-Economic Strength	*Poor Conflict Management*	*System Size*
GDP	**0.920**	-0.152	0.110
Bureaucracy	**0.820**	-0.250	0.014
Youth Burden	**-0.797**	0.345	-0.046
Rule of Law	**0.768**	-0.138	-0.156
Stability	**0.738**	0.025	0.155
Urbanization	**0.770**	-0.037	-0.120
Corruption	**-0.632**	0.412	0.142
Population Size	0.046	0.055	**0.856**
Trade Openness	0.099	0.033	**-0.800**
Military Expenditures	0.185	**0.737**	-0.266
Democracy	0.314	**-0.715**	0.101
External Conflict	-0.219	**0.608**	0.268
Religious Influence	-0.269	**0.617**	0.147

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 4 iterations. All variables enter PCA in normalized form. Bold numbers indicate prominent factor loading (see text).

Table 3: Results of the Principal Component Analysis

As shown in Table 3, we use 13 observed (independent) variables to obtain three latent variables. We interpret these three latent variables as indicators for three distinct system characteristics, namely (i) *socio-economic strength and stability*, (ii) *poor conflict management and conflict sensitivity* and (iii) *system size and controllability*.

In detail, the variable *socio-economic strength and stability* is constructed using the observed (normalized) variables of GDP, bureaucracy, population under 14 (youth burden), rule of law, stability, urbanization and corruption. Overall, this variable should indicate system strength rather than weakness. We expect a high *socio-economic strength and stability* to make highly organized forms of violent opposition (i.e., open rebellion) less likely because the (opportunity) costs of such behavior should be comparatively high (e.g., due to a country's economic success or its capable judicial and police system).

The latent variable *poor conflict management and conflict sensitivity* should by contrast indicate a weakness of a system. It is constructed using information on military expenditures, democracy (which enters negatively), external conflict and religious influence. Apparently, this variable indicates to which extent a system is already involved in conflict or is prone to such conflicts. Higher values for *conflict management and conflict sensitivity* should coincide with a higher likelihood of violent opposition, in particular more organized one. We may hypothesize that more militarized and undemocratic systems that are more prone to conflict are less able to integrate opposition and offer non-violent means of conflict resolution. Consequently, the cost-benefit matrices of any (potential) violent opposition group are swayed in ways that make such opposition more likely (e.g., by making alternatives to violence less attractive).

A third latent variable is labeled *system size and controllability* and is constructed using data on population size and trade openness (which enters negatively).[16] While the size of a system is not a strength or weakness on its own right, we may hypothesize that larger systems are more prone to any kind of violent opposition (net of socio-economic strength and poor conflict management) due to scale effects. On the one hand, it should become more difficult (more costly) to defend a system as it becomes larger. On the other hand, e.g., any violent opposition is able to draw from a larger pool of recruits and supporters when a system becomes larger.[17]

[16] Note that the inverse relationship between country size (population size) and trade openness is well-documented in the empirical literature, e.g., in Alesina and Wacziarg (1998).

[17] At the same time, any kind of violence (in particular low-scale terrorism) should be reported more frequently when a system is large. That is, our third latent variable is also to some extent linked to the underreporting problem that is common in the empirical analysis of terrorism (cf. Drakos and Gofas, 2006).

4.2 Multinomial Logistic Regression Estimations

We now use the three (latent) variables indicating strengths and weaknesses of a system in *multinomial logistic model* (MLM) to assess how these variables are related to distinct modes of violent opposition. Our empirical model takes the following form (e.g., Greene 2008):

$$P(VIOLENCE_{ijt}|w_{it}) = \frac{\exp(w_{it}'\alpha_j)}{\sum_{j=0}^{3}\exp(w_{it}'\alpha_j)}, \text{ with j = 0, 1, 2, 3} \quad (2)$$

It is our understanding that violent opposition occurs in three distinct modes, namely (low-scale) terrorism, minor civil conflict or major civil war. With respect to Equation (2) this means that our indicator of violent opposition (VIOLENCE) can take four different values. Our baseline (*j=0*) is peace; *j=1* when a country *i* only suffers from (homeland) terrorism; *j=2* when a country faces a minor civil conflict (i.e., a large terrorist campaign or a civil war below the conventional threshold) in period *t*; *or j=3* if there is a high level conflict (civil war).[18]

With the multinomial logistic model we estimate the probability of a certain mode of violent opposition depends on w_{it} and α_j, i.e., on system strength variables and further controls. To account for potential biases arising from omitted or outliers, we use robust standard error. The use of robust standard errors (and time lags of the dependent variable) is also justified given that further tests indicate the presence of autocorrelation (cf. see Wooldridge 2002), first-order correlation (cf. Arrelano and Bond 1991) and heteroscedasticity (cf. White 1980) in the dataset which may bias the results.[19] Note that let the explanatory variables enter the model in the *(t-1)* lagged form in order to avoid problems linked to reverse causation.

We first specify and estimate a baseline MLM that only includes the three latent system strength variables and time lags of the violent opposition variables. The results are reported in Table 4.

[18] Note that by measuring violent opposition in such ways we are able to circumvent the problem of underreporting which usually plagues the analysis of terrorism (cf. Drakos and Gofas 2006). Also, such a measurement variables does not make our estimation prone to outlier problems (in contrast to, e.g., count data models).

[19] Note that multicollinearity generally is not a problem for our estimations.

	Terrorism	Minor Civil War	Major Civil War
Terrorism $_{t-1}$	2.01 (11.76)***	1.31 (3.19)***	1.40 (0.98)
Minor Civil War $_{t-1}$	1.53 (3.80)***	4.89 (11.51)***	5.45 (5.01)***
Major Civil War $_{t-1}$	1.71 (1.93)*	4.21 (5.16)***	8.52 (6.82)***
Socio-Economic Strength $_{t-1}$	0.18 (2.41)**	-0.36 (2.27)**	-0.47 (1.82)*
Conflict Management $_{t-1}$	0.07 (0.93)	0.60 (4.87)***	0.96 (4.59)***
System Size $_{t-1}$	0.48 (5.11)***	0.69 (5.00)***	0.71 (3.36)***
No. of Observations	1140		
Pseudo R2	0.4048		
Wald Chi (18)	597.38***		

Notes: Baseline outcome is peace (no violent opposition). Robust standard errors used. Absolute z-values in parentheses. (*), (**) and (***) indicate significance at 10%, 5% and 1% levels.

Table 4: Baseline Results from Multinomial Regression Model

These results indicate that intermediate and high levels of violent opposition are negatively related to socio-economic strength, whereas this system strength actually makes terrorism more likely. Only incidences of intermediate and high levels of violent opposition become more likely with poorer conflict management, while this system weakness does not matter to terrorist activity. All forms of violent opposition become more likely with increasing system size. Our baseline results also provide strong evidence in favor of the existence of temporal contagion (as indicated by the lagged violence indicators). Estimating our baseline model with time dummies or regional dummies yields very similar results (not reported).

Generally, from our baseline model we thus find strong support for our hypothesis that certain components of system strength are negatively related to high-scale violence but positively to low-scale violence (terrorism). Evidently, open rebellion is not a cost-efficient option when a system offers socio-economic stability and strength. Violent opposition should have difficulties finding sufficient support and funding, thus resorting to underground violence (terrorism) instead.

As another finding, poor conflict management and an increased conflict sensitivity in particular matter to more violent forms of opposition. For instance, violent opposition groups may capitalize on existing religious conflicts to muster support (making violence less costly).

Alternatively, being already involved in other conflicts (e.g., international disputes) may make it more difficult to the attacked system to respond to emerging threats (again making violence less costly).

Lastly, net of the effects of socio-economic strength and poor conflict management, incidences of violent opposition become more probable when systems grow in size. This may indicate that system controllability decreases with size (e.g., making counter-violence policies by the government more costly).

Next, we amend our baseline model with two additional control variables (mountainous terrain and the security of property rights).[20] The corresponding results are reported in Table 5.

	Terrorism	Minor Civil War	Major Civil War
Terrorism $_{t-1}$	2.32 (11.67)***	1.52 (3.37)***	0.95 (0.59)
Minor Civil War $_{t-1}$	1.69 (3.91)***	5.14 (10.40)***	5.61 (4.93)***
Major Civil War $_{t-1}$	1.77 (1.80)*	4.46 (4.56)***	9.49 (6.24)***
Socio-Economic Strength $_{t-1}$	0.18 (2.01)**	-0.30 (1.65)*	-0.10 (0.26)
Conflict Management $_{t-1}$	0.13 (1.46)	0.66 (4.71)***	0.86 (3.03)***
System Size $_{t-1}$	0.53 (5.16)***	0.70 (4.54)***	0.74 (3.08)***
Economic Rights $_{t-1}$	0.01 (0.13)	-0.09 (0.81)	-0.58 (2.55)**
Rough Terrain	0.01 (1.68)*	0.01 (1.15)	0.01 (0.17)
No. of Observations	1140		
Pseudo R2	0.4539		
Wald Chi (18)	613.99***		

Notes: Baseline outcome is peace (no violent opposition). Robust standard errors used. Absolute z-values in parentheses. (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. Specification includes time dummies (not reported).

Table 5: Results from the Extended Multinomial Regression Model

[20] Note that while the security of property rights is a variable describing the strength/weakness of a system, it does not fit (according to our PCA results) in any of our broader categories identified by the PCA. By contrast, the PCA indicates that the extent of economic rights is a category of its own and thus enters our extended model as such.

The results from the extended model generally confirm the ones from the baseline estimation. That is, we again find that socio-economic strength is related to the modes of violent opposition in a non-monotonic way (as expected by our theoretical reasoning). Again, poor conflict management only matters to the intermediate and high levels of violent opposition. Also, system size makes all forms of violent opposition more likely (implying that system controllability decreases with size). With respect to the additional controls, we only find marginal evidence that geographic features matter to the modes of violent opposition. Also, the protection of property rights (economic rights) only makes civil war less likely, but not the minor forms of violent opposition. Our baseline findings are thus stable to the addition of some further controls.

Finally, we estimate our baseline MLM with the squares of the distinct system strength variables as additional explanatory variables to test for a nonlinear relationship between the modes of violent opposition and system strength. In Table 6, we report our MLM findings when we let all squared terms enter the MLM at the same time. Note that we obtain very similar findings when we let only one squared term enter the MLM at one time (not reported).

	Terrorism	Minor Civil War	Major Civil War
Terrorism $_{t-1}$	2.29 (11.46)***	1.56 (3.42)***	1.34 (0.92)
Minor Civil War $_{t-1}$	1.74 (3.92)***	5.16 (10.22)***	5.59 (5.25)***
Major Civil War $_{t-1}$	1.69 (1.70)*	4.31 (4.46)***	8.83 (6.38)***
Socio-Economic Strength $_{t-1}$	0.233 (2.52)**	-0.22 (1.29)	-0.69 (2.19)**
Socio-Economic Strength $_{t-1}$ (Sq.)	-0.02 (0.28)	-0.03 (0.18)	-0.67 (2.17)**
Conflict Management $_{t-1}$	0.21 (1.69)*	0.97 (4.09)***	1.41 (2.90)***
Conflict Management $_{t-1}$ (Sq.)	-0.11 (1.43)	-0.20 (1.87)*	-0.20 (0.91)
System Size $_{t-1}$	0.53 (5.26)***	0.82 (4.29)***	0.54 (2.03)**
System Size $_{t-1}$ (Sq.)	0.05 (0.66)	-0.14 (1.40)	0.06 (0.43)
No. of Observations	1140		
Pseudo R2	0.4538		
Wald Chi (18)	657.05***		

Notes: Baseline outcome is peace (no violent opposition). Robust standard errors used. Absolute z-values in parentheses. (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. (Sq.) indicates squared term. Specification includes time dummies (not reported).

Table 6: Results for the Analysis of Non-Linear Effects

As shown above, our results only provide marginal evidence for non-linear effects between system strengths and weaknesses and violent opposition. Rather, we find that our baseline findings are supported. Only for the intermediate level of violent opposition we find a non-linear effect. That is, we again find that our baseline findings hold to some methodological changes. Our main hypothesis finds additional support, in particular with respect to the positive relationship between socio-economic strength and terrorism and the strongly negative link between socio-economic strength and open rebellion (major civil war).

As further robustness checks, we add a climate variable (absolute latitude) to our model shows that countries located in more modest climate zones are less likely to suffer less lethal and organized forms of violent opposition. However, the strong correlation between this climate variable and the latent variable indicating socio-economic strength ($r=0.71$) suggest that we should not report this variable in our standard model. We also include a variable indicating the neighborhood to conflict but do not find that this variable adds to the explanatory power of our models. Finally, we run three separate logistic regressions using our baseline specification (so that we only estimate the likelihood of terrorism, minor conflict or civil war at one time). Here, we also come to similar findings as reported before (results not shown).

5 Conclusion

In this contribution, we provided a simple conceptual framework to explain why violent opposition groups choose distinct forms of violence which differ, e.g., with respect to employed tactics, lethality and organizational structure. We built on the previous works and ideas by, e.g., Sambanis (2008), Besley and Persson (2009), Sanchez-Cuenca and Calle (2009) and Sanchez-Cuenca (2009a). Our main hypothesis was that violent opposition groups (while potentially not differing in their intermediate and ultimate goals, e.g., national independence, and the choice of their targets) use certain modes of violence in response to the strengths and weaknesses of the system they challenge. Essentially, the mode of violent opposition is a function of system strengths/weaknesses. When systems are 'weak', open (organized) rebellions wars should be more likely as opposition groups may be able to seize the opportunity to gain control over political and economic agenda setting. By contrast, when systems are 'strong', terrorism is the likely choice of violent opposition.

In the empirical part of this contribution, we tested this hypothesis. First, we identified certain dimensions of system strengths/weaknesses through principal component analysis. Then, we ran a number of multinomial logistic regressions for 103 countries during 1992-2004, finding that (i) a latent variable indicating socio-economic strength and stability is positively related to the likelihood of terrorism but negatively to incidences of more violent forms of violent opposition. (ii) Poor conflict management only matters to these more violent modes of violent opposition but not to terrorism. (iii) System size is positively associated with incidences of all modes of violent opposition.

Given the positive correlation between economic development and system strength, we think that our findings may help to understand why most studies on the determinants of terrorism have failed to connect it to poor economic conditions (cf. Krieger and Meierrieks 2010). In fact, countries with poor economic development are more likely to experience more violent forms of opposition, usually labeled 'civil war' and not 'terrorism'.[21] The latter finding can be found, e.g., in Fearon and Laitin (2003). Our study also offers an intuitive explanation as to why some studies (e.g., Li 2005; Burgoon 2006) have found that more capable systems are more likely to be targeted by terrorism. Again, this finding stems from the choice of violent opposition groups in favor of terrorism in the face of 'strong' systems.

Our findings imply that episodes of major violence can be prevented through sound conflict management and an improvement of socio-economic conditions, e.g., through institutional reforms and efforts to socio-economic and political development and stabilization (both internally and internationally). However, our findings also indicate that there is some price to pay. In particular, an improvement of socio-economic conditions, while fending off civil war, may make terrorism more likely.

[21] Note that this finding does not imply that violent opposition (in particular terrorism) is not rooted in poor economic conditions. Rather, we may assume that previous studies on the causes of terrorism have failed to thoroughly disentangle the effects of economic conditions (economic development) and state strength on the genesis of terrorism.

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Appendix A. List of Countries

Albania
Algeria
Angola
Argentina
Australia
Austria
Bahrain
Bangladesh
Belgium
Bolivia
Botswana
Brazil
Bulgaria
Burkina Faso
Cameroon
Canada
Chile
China
Colombia
Cote d'Ivoire
Cyprus
Czech Republic
Denmark
Ecuador
Egypt
El Salvador
Ethiopia
Finland
France
Gambia
Germany
Ghana
Greece
Guatemala
Guinea
Guinea-Bissau
Honduras
Hungary
India
Indonesia
Iran
Ireland
Israel
Italy
Japan
Jordan
Kenya
Kuwait
Lebanon
Liberia
Libya
Madagascar
Malawi
Malaysia
Mali
Mexico
Mongolia
Morocco
Mozambique
Namibia
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Romania
Russia
Saudi Arabia
Senegal
Sierra Leone
Slovakia
South Africa
South Korea
Spain
Sri Lanka
Sudan
Sweden
Switzerland
Syria
Tanzania
Thailand
Togo
Tunisia
Turkey
UAE
Uganda
United Kingdom
United States
Uruguay
Venezuela
Yemen
Zambia
Zimbabwe

Appendix B. Independent and Control Variables

Variable	Measurement	Data Source
GDP	Logged real GDP per capita	Penn World Table (PENN)
Bureaucracy	Rescaled index of bureaucratic quality	International Country Risk Guide (ICRG)
Youth Burden	Fraction of population below the age of 14	World Development Indicators (WDI)
Rule of Law	Rescaled index of the quality of the judicial and police system	ICRG
Stability	Number of years since the last major regime change (durability variable)	Polity IV Project
Urbanization	Fraction of population living in urban areas	WDI
Corruption	Rescaled indicator for the degree of corruption	ICRG
Population Size	Logged size of population	PENN
Trade Openness	Exports and Imports to real GDP	PENN
Military Expenditures	Fraction of central government expenditure	WDI
External Conflict	Rescaled indicator for the extent of international conflict and disputes	ICRG
Democracy	Rescaled Polity2 variable	Polity IV Project
Religious Influence	Rescaled indicator for the degree of religious influence in politics and religious conflict	ICRG
Economic Rights	Rescaled index of the security of property rights	ICRG
Mountains	Fraction of state territory defined as mountainous	Fearon and Laitin (2003)
Latitude	Absolute Latitude	Various Sources
Neighborhood	Dummy variable for conflict in neighboring countries above 1000 battle deaths/year threshold	Gleditsch et al. (2002)